

Fig. 2

| CODE NAME                       | NUMBER OF BITS | CONTENT  |
|---------------------------------|----------------|--|
| sequence header code            | 32             | SEQUENCE HEADER CODE   |
| horizontal size value           | 12             | LOW ORDER 12 BITS OF NUMBER OF PIXELS IN HORIZONTAL DIRECTION    |
| vertical size value             | 12             | LOW ORDER 12 BITS OF NUMBER OF PIXELS IN VERTICAL DIRECTION      |
| aspect ratio information        | 4              | PIXEL ASPECT RATIO INFORMATION                                   |
| frame rate code                 | 4              | FRAME RATE CODE  |
| bit rate value                  | 18             | LOW ORDER 18 BITS OF BIT RATE (INDICATION AS BLOCKS OF 400 BITS) |
| vbv buffer size value           | 10             | LOW ORDER 10 BITS OF VBV BUFFER SIZE                             |
| intra quantiser matrix [64]     | 8 * 64         | INTRA MB QUANTIZING MATRIX VALUE                                 |
| non intra quantiser matrix [64] | 8 * 64         | NON-INTRA MB QUANTIZING MATRIX VALUE                             |

**Fig. 3**

| CODE NAME                    | NUMBER<br>OF BITS | CONTENT                                      |
|------------------------------|-------------------|--|
| profile and level indication | 8                 | PROFILE, LEVEL                               |
| progressive sequence         | 1                 | OVERALL SEQUENCE<br>PROGRESSIVE PICTURE FLAG |
| chroma format                | 2                 | COLOR DIFFERENCE FORMAT                      |
| low delay                    | 1                 | LOW DELAY MODE<br>(WITHOUT B PICTURE)        |

Fig. 4

| CODE NAME                              | NUMBER OF BITS | CONTENT   |
|--|----------------|---|
| extension data (0)                     |                | EXTENSION DATA (0)  |
| sequence display extension ( )         |                | SEQUENCE INDICATION ( )   |
| sequence scalable extension ( )        |                | SEQUENCE SCALABLE EXTENSION ( )                                     |
| extension start code identifier        | 4              | SEQUENCE SCALABLE EXTENSION ID                                      |
| scalable mode                          | 2              | SCALABILITY MODE  |
| layer id                               | 4              | LAYER ID OF SCALABLE HIERARCHY                                      |
| SPATIAL SCALABILITY                    |                |   |
| lower layer prediction horizontal size | 14             | HORIZONTAL SIZE OF PREDICTIVE LOWER LAYER                           |
| lower layer prediction vertical size   | 14             | VERTICAL SIZE OF PREDICTIVE LOWER LAYER                             |
| vertical subsampling factor n          | 5              | DIVISOR FOR UP SAMPLE IN VERTICAL DIRECTION                         |
| TEMPORAL SCALABILITY                   |                |   |
| picture mux order                      | 3              | NUMBER OF PICTURES OF ADDITIONAL LAYER FOLLOWED BY FIRST BASE LAYER |
| picture mux factor                     | 3              | NUMBER OF PICTURES OF ADDITIONAL LAYER BETWEEN BASE LAYERS          |
| user data ( )                          |                | USER DATA ( )   |
| user data                              | 8              | USER DATA   |

**Fig. 5**

| CODE NAME            | NUMBER OF BITS | CONTENT  |
|----------------------|----------------|--|
| group start code ( ) | 32             | GOP START CODE   |
| time code            | 25             | TIME CODE (HOUR, MINUTE, SECOND, PICTURE)                            |
| closed gop           | 1              | FLAG REPRESENTING INDEPENDENCY OF GOP                                |
| broken link          | 1              | FLAG REPRESENTING VALIDITY OF B PICTURE FOLLOWED BY I PICTURE OF GOP |

**Fig. 6**

| CODE NAME          | NUMBER OF BITS | CONTENT            |
|--------------------|----------------|--------------------|
| extension data (1) |                | EXTENSION DATA (1) |
| user data ( )      |                | USER DATA ( )      |
| user data          | 8              | USER DATA          |

**Fig. 7**

| CODE NAME           | NUMBER OF BITS | CONTENT   |
|---------------------|----------------|---|
| picture start code  | 32             | PICTURE START CODE                                |
| temporal reference  | 10             | DISPLAY SEQUENCE OF PICTURES IN GOP (MODULO 1024) |
| picture coding type | 3              | PICTURE ENCODING TYPE (I, B, P)                   |
| vbv delay           | 16             | VBV DELAY AMOUNT UNTILL START OF DECODING         |

Fig. 8

| CODE NAME                  | NUMBER OF BITS | CONTENT  |
|----------------------------|----------------|--|
| f code [s][t]              | 4              | RANGE OF MOVING VECTOR IN FORWARD/BACKWARD DIRECTIONS (s) AND HORIZONTAL/VERTICAL DIRECTIONS (t) |
| intra dc precision         | 2              | ACCURACY OF DC COEFFICIENTS OF INTRA MB  |
| picture structure          | 2              | PICTURE STRUCTURE (FRAME, FIELD)   |
| top field first            | 1              | DESIGNATING DISPLAY FIELD  |
| frame pred frame dct       | 1              | FRAME PREDICTION + FRAME DCT FLAG  |
| concealment motion vectors | 1              | INTRA MB CONCEALMENT MV FLAG   |
| q scale type               | 1              | QUANTIZING SCALE TYPE (LINEAR, NON-LINEAR)   |
| intra vlc format           | 1              | vlc TYPE FOR INTRA MB  |
| alternate scan             | 1              | SCANNING TYPE (ZIGZAG, ALTERNATE)  |
| repeat first field         | 1              | 2 : 3 PULL-DOWN FIELD REPEAT   |
| chroma 420 type            | 1              | SAME VALUE AS PROGRESSIVE FRAME IN CHROMA FORMAT 4 : 2 : 0                                       |
| progressive frame          | 1              | PROGRESSIVE FRAME FLAG   |

**Fig. 9**

| CODE NAME                                | NUMBER OF BITS | CONTENT  |
|--|----------------|--|
| extension data (2)                       |                | EXTENSION DATA (2)                                 |
| quant matrix extension ( )               |                | QUANTIZING MATRIX EXTENSION ( )                    |
| intra quantiser matrix [64]              | 8 * 64         | INTRA MB QUANTIZING MATRIX                         |
| non intra quantiser matrix [64]          | 8 * 64         | NON-INTRA MB QUANTIZING MATRIX                     |
| chroma intra quantiser matrix [64]       | 8 * 64         | CHROMA INTRA QUANTIZING MATRIX                     |
| chroma non intra quantiser matrix [64]   | 8 * 64         | CHROMA NON-INTRA QUANTIZING MATRIX                 |
| copyright extension ( )                  |                | COPYRIGHT EXTENSION ( )                            |
| picture display extension ( )            |                | PICTURE DISPLAY EXTENSION ( )                      |
| picture spatial scalable extension ( )   |                | PICTURE SPACE SCALABLE EXTENSION ( )               |
| spatial temporal weight code table index | 2              | SPATIAL AND TEMPORAL WEIGHTING TABLE FOR UP SAMPLE |
| lower layer progressive frame            | 1              | LOWER LAYER PROGRESSIVE PICTURE FLAG               |
| lower layer deinterlaced field select    | 1              | LOWER LAYER FIELD SELECTION                        |
| picture temporal scalable extension ( )  |                | PICTURE TEMPORAL SCALABLE EXTENSION ( )            |
| reference select code                    | 2              | SELECTION OF REFERENCE SCREEN                      |
| forward temporal reference               | 10             | PICTURE NUMBER OF FORWARD PREDICTIVE LOWER LAYER   |
| backward temporal reference              | 10             | PICTURE NUMBER OF BACKWARD PREDICTIVE LOWER LAYER  |
| user data ( )                            |                | USER DATA ( )                                      |
| user data ( )                            | 8              | USER DATA  |

**Fig. 10**

| CODE NAME                         | NUMBER OF BITS | CONTENT  |
|-----------------------------------|----------------|--|
| slice start code                  | 32             | SLICE START CODE + SLICE VERTICAL POSITION       |
| slice vertical position extension | 3              | SLICE VERTICAL POSITION EXTENSION (> 2800 LINES) |
| priority breakpoint               | 7              | DATA PARTITIONING BREAKPOINT                     |
| quantiser scale code              | 5              | QUANTIZING SCALE CODE (1 TO 31)                  |
| intra slice                       | 1              | INTRA SLICE FLAG                                 |
| macroblock ( )                    |                | MACRO BLOCK DATA ( )                             |



Fig. 11

| CODE NAME                                   | NUMBER OF BITS | CONTENT  |
|---|----------------|--|
| macroblock escape                           | 11             | MB ADDRESS EXTENSION ( $> 33$ )                                |
| macroblock address increment                | 1-11           | DIFFERENCE BETWEEN CURRENT MB ADDRESS AND PRECEDING MB ADDRESS |
| macroblock modes ( )                        |                | MACRO BLOCK MODE ( )   |
| macroblock type                             | 1-9            | MB ENCODING TYPE ( MC, CODED, etc )                            |
| spatial temporal weight code                | 2              | TEMPORAL/SPATIAL WEIGHTING CODE FOR UP SAMPLE                  |
| frame motion type                           | 2              | MOTION COMPENSATION TYPE OF FRAME STRUCTURE                    |
| field motion type                           | 2              | MOTION COMPENSATION TYPE OF FIELD STRUCTURE                    |
| dct type                                    | 1              | DCT TYPE (FRAME, FIELD)  |
| quantiser scale code                        | 5              | MB QUANTIZING SCALE CODE (1 TO 31)                             |
| motion vectors (s)                          |                | MOVING VECTOR (s)  |
| motion vertical field select [ $r$ ][ $s$ ] | 1              | SELECTION OF REFERENCE FIELD USED FOR PREDICTION               |
| motion vector ( $r, s$ )                    |                | MOVING VECTOR ( $r, s$ )                                       |
| motion code [ $r$ ][ $s$ ][ $t$ ]           | 1-11           | BASIC DIFFERENCE MOVING VECTOR                                 |
| motion residual [ $r$ ][ $s$ ][ $t$ ]       | 1-8            | DIFFERENCE VECTOR  |
| dmvector [ $t$ ]                            | 1-2            | DIFFERENCE VECTOR FOR DUAL PRIME                               |
| coded block pattern ( )                     |                | CBP  |
| block ( / )                                 |                | BLOCK DATA ( )   |

**Fig. 12**

| CODE NAME                  | NUMBER OF BITS | CONTENT   |
|----------------------------|----------------|---|
| dct dc size luminance      | 2-9            | DCT LUMINANCE DC COEFFICIENT DIFFERENCE SIZE    |
| dct dc differential        | 1-11           | DCT LUMINANCE DC COEFFICIENT DIFFERENCE VALUE   |
| dct dc size chrominance    | 2-10           | DCT CHROMINANCE DC COEFFICIENT DIFFERENCE SIZE  |
| dct dc differential        | 1-11           | DCT CHROMINANCE DC COEFFICIENT DIFFERENCE VALUE |
| First DCT coefficient      | 3-24           | FIRST NON-ZERO COEFFICIENT OF NON-INTRA BLOCK   |
| Subsequent DCT coefficient | 2-24           | DCT COEFFICIENT THAT FOLLOWS                    |
| End of block               | 2 or 4         | DCT COEFFICIENT END FLAG IN BLOCK               |

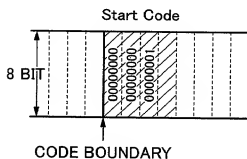
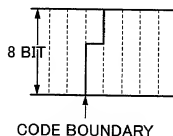
**Fig. 13A****Fig. 13B**

Fig. 14

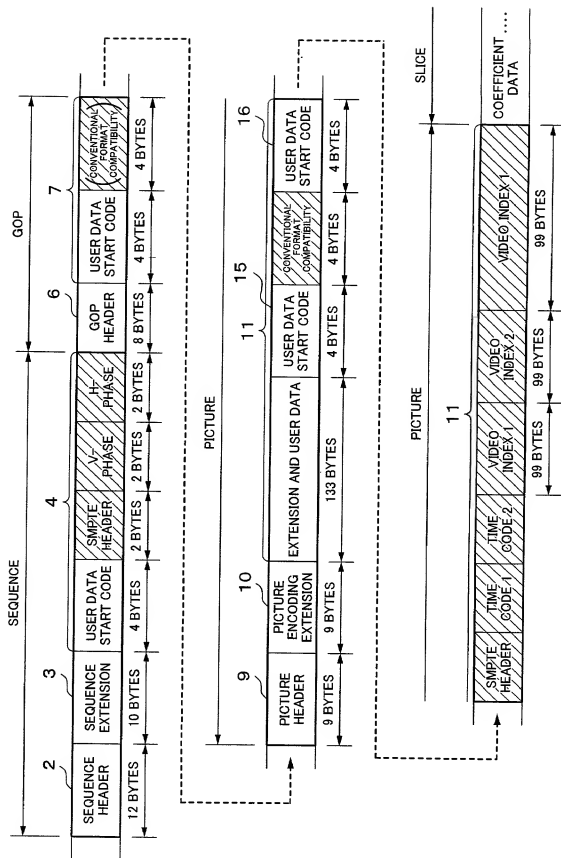
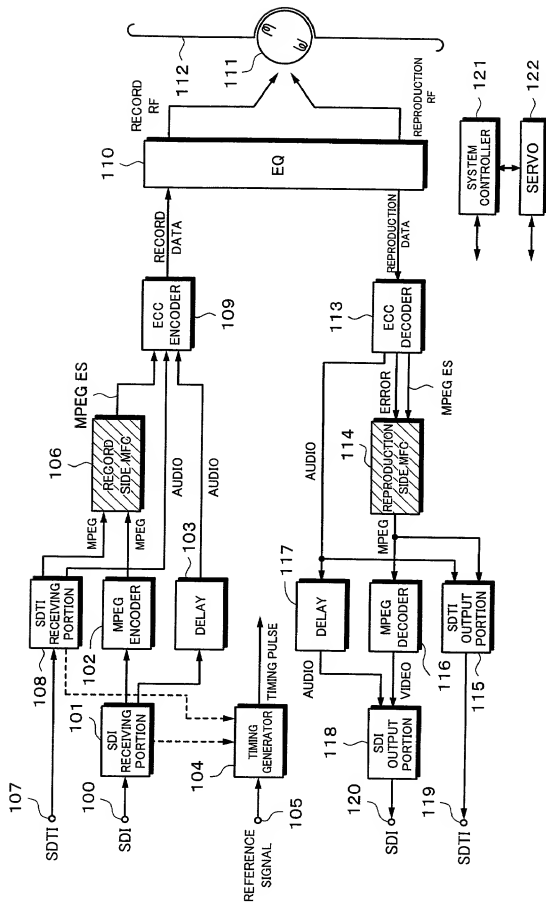
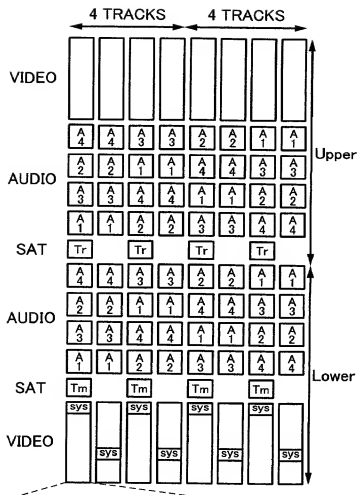
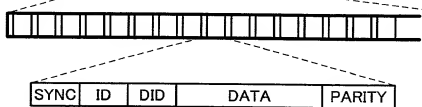
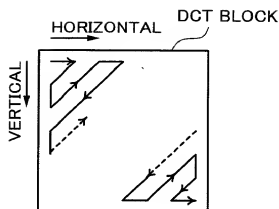
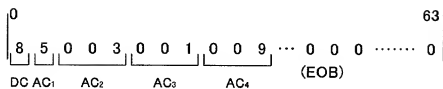
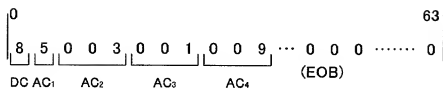
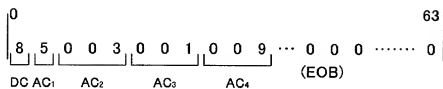
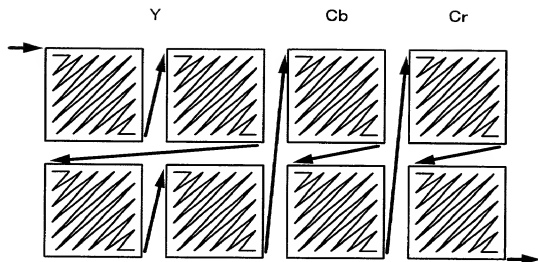
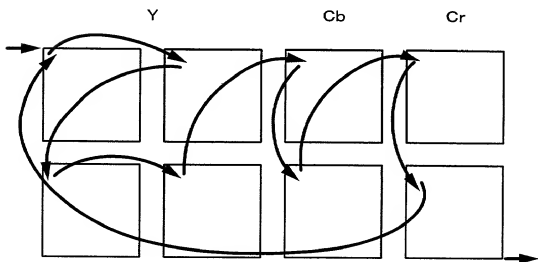


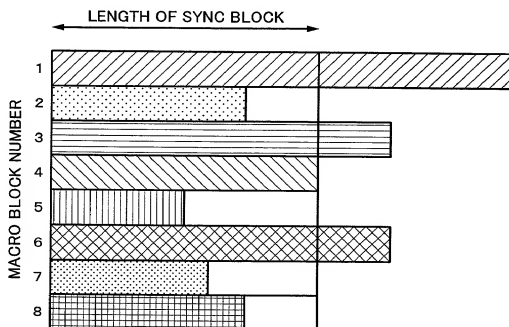
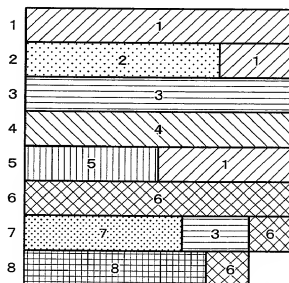
Fig. 15



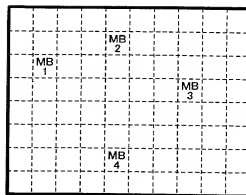
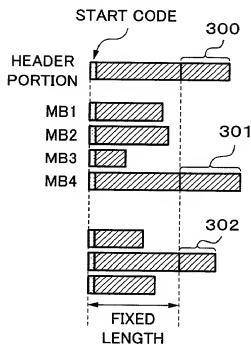
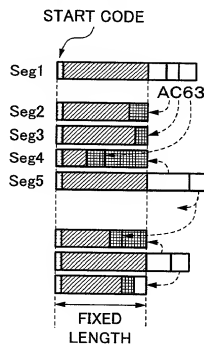
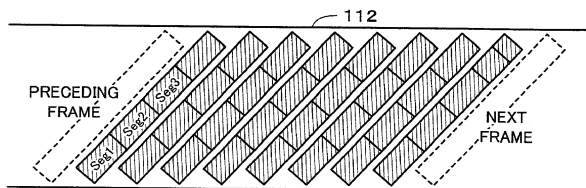
**Fig. 16A****Fig. 16B****Fig. 16C**

**Fig. 17A****Fig. 17B**

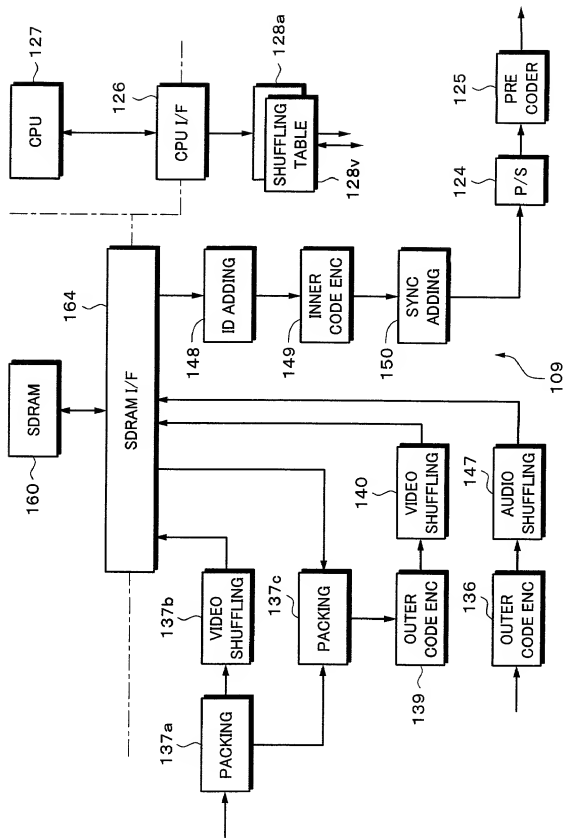
**Fig. 18A****Fig. 18B**

**Fig. 19A****Fig. 19B**

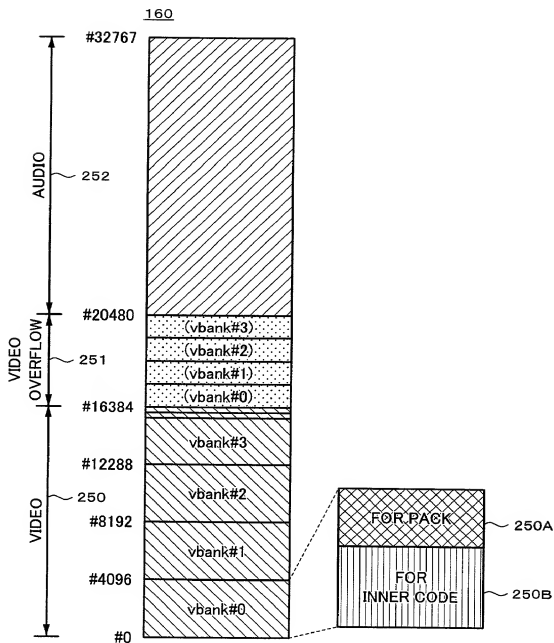


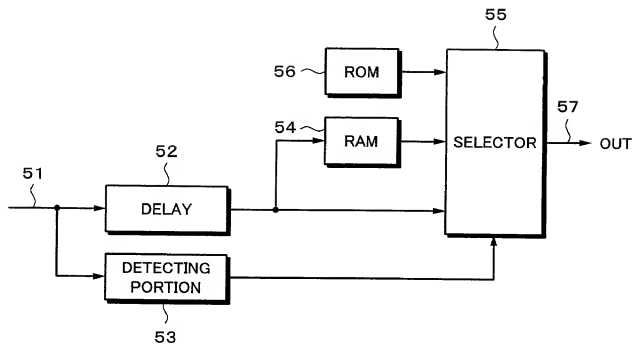
**Fig. 20A****Fig. 20B****Fig. 20C****Fig. 20D**

**Fig. 21**

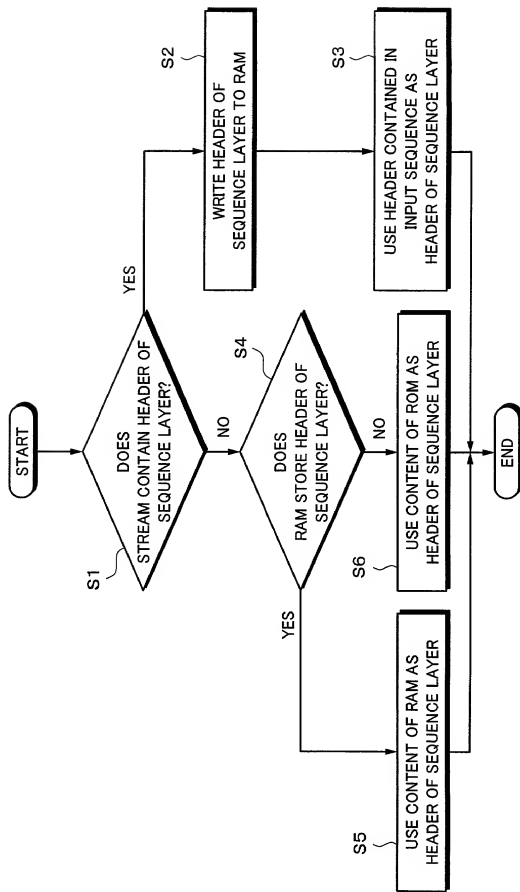


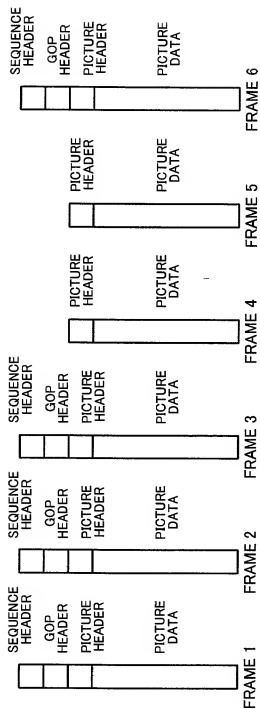
**Fig. 22**



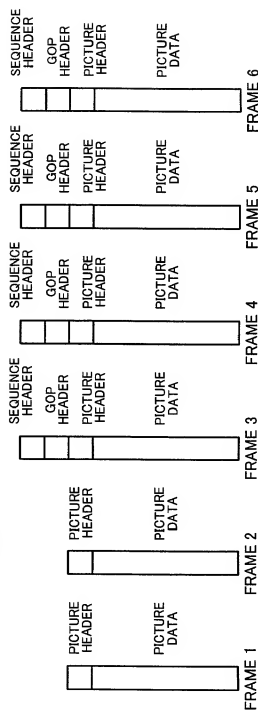
**Fig. 23**

**Fig. 24**





**Fig. 25A**



**Fig. 25B**